

CLAIMS:

1. A magnetic alignment system for a transcutaneous transmitter/receiver system, said magnetic alignment system comprising an external transmitter unit and an
5 implantable receiver component, both the external transmitter unit and the implantable receiver component having a magnet positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;
the system being characterised in that an outer surface of the magnet, or a casing for the magnet, of the implantable receiver component has an engagement surface that
10 is engageable with a complementary engagement surface formed in a mounting of the implantable receiver component.
2. The magnetic alignment system of claim 1 wherein the magnet has at least one extension member that extends from the magnet or the casing for the magnet, said at
15 least one extension member including at least part of the engagement surface and wherein the mounting has at least one recessed portion that includes at least part of the complementary engagement surface.
3. The magnetic alignment system of claim 2 wherein the mounting comprises a
20 ring member.
4. The magnetic alignment system of claim 3 wherein the magnet is positionable within the center of the ring member.
- 25 5. The magnetic alignment system of claim 4 wherein the ring member further includes at least one receiving slot to receive the at least one extension member of the magnet.
6. The magnetic alignment system of claim 5 wherein the at least one receiving
30 slot is positioned on an inner surface of the ring member and extends from an upper surface of the ring member to a lower surface of the ring member.
7. The magnetic alignment system of claim 6 wherein the at least one extension member is longitudinally moveable through the receiving slot to a position substantially
35 beyond the lower surface of the ring member.

8. The magnetic alignment system of claim 7 wherein the magnet is rotatably movable relative to the ring member such that the at least one extension member is movable from a first position substantially in alignment with the receiving slot to a second position wherein it is at least partially housed within the recessed portion of the ring member.

9. The magnetic alignment system of claim 8 wherein the recessed portion of the ring member receives the at least one extension member to prevent further rotational movement of the magnet relative to the ring member.

10

10. The magnetic alignment system of claim 1 wherein the magnet has two opposing extension members that extend from the magnet or the casing for the magnet, said extension members forming at least part of the engagement surface and wherein the mounting has two recessed portions therein, said recessed portions forming at least part of the complementary engagement surface.

15

11. The magnetic alignment system of claim 3 wherein the ring member includes a series of holes spaced around its circumference.

12. The magnetic alignment system of claim 11 wherein said holes receive a material of the implantable receiver component to secure the ring member to the material of the implantable receiver component.

20

13. The magnetic alignment system of claim 12 wherein the holes receive a biocompatible silicone material of the implantable receiver component.

25

14. The magnetic alignment system of claim 1 wherein the engagement surface of the magnet is a screw thread and the complementary engagement surface of the mounting is a corresponding screw thread.

30

15. The magnetic alignment system of claim 14 wherein the mounting has a ring member and wherein the screw thread of the mounting is on an internal surface of the ring member.

16. The magnetic alignment system of claim 1 wherein the engagement surface of the magnet and the complementary engagement surface of the mounting are engageable with each other to provide a friction fit.
- 5 17. The magnetic alignment system of claim 16 wherein the magnet is moveable relative to the mounting between a first position and a second position such that in the first position there is a friction fit between the engagement surface of the magnet and the complementary engagement surface of the mounting and in the second position the engagement surface of the magnet and the complementary engagement surface of the
10 mounting do not engage each other.
18. The magnetic alignment system of claim 17 wherein the magnet is rotatable relative to the mounting between said first position and said second position.
- 15 19. A magnetic alignment system for a transcutaneous transmitter/receiver system; said magnetic alignment system comprising an external transmitter unit and an implantable receiver component, both the external transmitter unit and the implantable receiver component having a magnet positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;
20 the system being characterised in that the magnet of the implantable receiver component is housable within a pocket formed in a suitable biocompatible flexible mounting, said pocket having a restricted opening formed therein through which the magnet is insertable but which is sized to retain the magnet within the pocket following insertion.
25
20. The magnetic alignment system of claim 19 wherein the opening of the pocket is formed in a sidewall of the mounting.
21. A magnetic alignment system for a transcutaneous transmitter/receiver system,
30 said magnetic alignment system comprising an external transmitter unit and an implantable receiver component, both the external transmitter unit and the implantable receiver component having a magnet positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;
the system being characterised in that the magnet of the implantable receiver
35 component is housed within a suitable biocompatible flexible mounting, said mounting

having one or more indicia thereon or therein that identify the location of the magnet within the mounting.

22. The magnetic alignment system of claim 21 wherein the mounting is formed of
5 a suitable biocompatible material.

23. The magnetic alignment system of claim 22 wherein the indicia comprises an indented ring formed in the body of a silicone mounting.

10 24. The magnetic alignment system of claim 22 wherein the indicia comprises one or more holes formed in the body of a silicone mounting.

25. A magnetic alignment system for a transcutaneous transmitter/receiver system, said magnetic alignment system comprising an external transmitter unit and an
15 implantable receiver component, both the external transmitter unit and the implantable receiver component having a magnet positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;
the system being characterised in that the magnet is releasably held within the receiver component by one or more retaining devices.

20

26. The magnetic alignment system of claim 25 wherein the one or more retaining devices comprise one or more clips.

27. The magnetic alignment system of claim 26 wherein the one or more clips are
25 mounted on the receiver component and are engageable with the magnet positioned therein or thereon.

28. The magnetic alignment system of claim 26 wherein the one or more clips are mounted to the magnet or a casing thereof and are engageable with the receiver
30 component.

29. A magnetic alignment system for a transcutaneous transmitter/receiver system, said magnetic alignment system comprising an external transmitter unit and an
implantable receiver component, both the external transmitter unit and the implantable
35 receiver component having a magnet positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;

the system being characterised in that the magnet of the implantable receiver component is housed within a recess formed in a suitable biocompatible flexible mounting, said recess being locatable adjacent the skull of the implantee in use thereby ensuring the magnet is held in the recess between the receiver component and the skull
5 of the implantee.

30. A magnetic alignment system for a transcutaneous transmitter/receiver system, said magnetic alignment system comprising an external transmitter unit and an implantable receiver component, the external transmitter unit having a magnet
10 positioned therein and the implantable receiver component having a non-magnetised insert positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;

the non-magnetised insert of the implantable receiver component having a first end and a second end and increasing in width away from said first end towards said
15 second end, the first end being positionable closer to the skin of the implantee to ensure self-centering of the magnet of the external transmitter unit with the non-magnetised insert of the receiver component.

31. The magnetic alignment system of claim 30 wherein the non-magnetised insert
20 is conical or frusto-conical.

32. The magnetic alignment system of claim 31 wherein the non-magnetised insert is a conical, non-magnetised ferro-magnetic insert

25 33. A magnetic alignment system for a transcutaneous transmitter/receiver system, said magnetic alignment system comprising an external transmitter unit and an implantable receiver component, both the external transmitter unit and the implantable receiver component having a magnet positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;

30 the system being characterised in that the implantable receiver component is detachably connectable to an implantable tissue stimulator device.

34. The magnetic alignment system of claim 33 wherein electrical connection is made between the receiver component and the tissue stimulator device when the
35 component is connected to the stimulator device.

35. A cochlear implant system comprising an external transmitter unit positionable on the outside of a implantee's head and an implantable receiver component positionable subcutaneously, wherein said external transmitter unit and said implantable receiver component each comprise a magnet therein to hold the external transmitter unit substantially in transcutaneous alignment with the implantable receiver component; wherein an outer surface of the magnet, or a casing for the magnet, of the implantable receiver component has an engagement surface that is engageable with a complementary engagement surface formed in a mounting of the implantable component.
36. A cochlear implant system comprising an external transmitter unit positionable on the outside of a implantee's head and an implantable receiver component positionable subcutaneously, wherein said external transmitter unit and said implantable receiver component each comprise a magnet therein to hold the external transmitter unit substantially in transcutaneous alignment with the implantable receiver component and wherein the magnet of the implantable receiver component is housable within a pocket formed in a suitable biocompatible flexible mounting, said pocket having a restricted opening formed therein through which the magnet is insertable but which is sized to retain the magnet within the pocket following insertion.
37. A cochlear implant system comprising an external transmitter unit positionable on the outside of a implantee's head and an implantable receiver component positionable subcutaneously, wherein said external transmitter unit and said implantable receiver component each comprise a magnet therein to hold the external transmitter unit substantially in transcutaneous alignment with the implantable receiver component; wherein the magnet of the implantable receiver component is housed within a suitable biocompatible flexible mounting, said mounting having one or more indicia thereon or therein that identify the location of the magnet within the mounting.
38. A cochlear implant system comprising an external transmitter unit positionable on the outside of a implantee's head and an implantable receiver component positionable subcutaneously, wherein said external transmitter unit and said implantable receiver component each comprise a magnet therein to hold the external transmitter unit substantially in transcutaneous alignment with the implantable receiver component; wherein the magnet is releasably held within the receiver component by one or more retaining devices.

39. A cochlear implant system comprising an external transmitter unit positionable on the outside of a implantee's head and an implantable receiver component positionable subcutaneously, wherein said external transmitter unit and said
5 implantable receiver component each comprise a magnet therein to hold the external transmitter unit substantially in transcutaneous alignment with the implantable receiver component; wherein the magnet of the implantable receiver component is housed within a recess formed in a suitable biocompatible flexible mounting, said recess being locatable adjacent the skull of the implantee in use thereby ensuring the magnet is held
10 in the recess between the receiver component and the skull of the implantee.

40. A cochlear implant system comprising an external transmitter unit positionable on the outside of a implantee's head and an implantable receiver component positionable subcutaneously, wherein the external transmitter unit has a magnet
15 positioned therein and the implantable receiver component has a magnetised insert positioned therein to allow transcutaneous alignment of said external transmitter unit and said implantable receiver component;

the magnetised insert of the implantable receiver component having a first end and a second end and increasing in width away from said first end towards said second
20 end, the first end being positionable closer to the skin of the implantee in use to ensure self-centering of the magnet of the external transmitter unit with the magnetised insert of the receiver component.

41. A cochlear implant system comprising an external transmitter unit positionable
25 on the outside of an implantee's head and an implantable receiver component positionable subcutaneously, wherein said external transmitter unit and said implantable receiver component each comprise a magnet therein to hold the external transmitter unit substantially in transcutaneous alignment with the implantable receiver component; the system being characterised in that the implantable receiver component
30 is detachably connectable to an implantable cochlea stimulator device.